Sublingual Sufentanil for Acute Pain on and off the Battlefield: A Narrative Overview

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Sublingual sufentanil is a noninvasive option for optimizing pain control in austere conditions for soldiers and civilians.

BACKGROUND

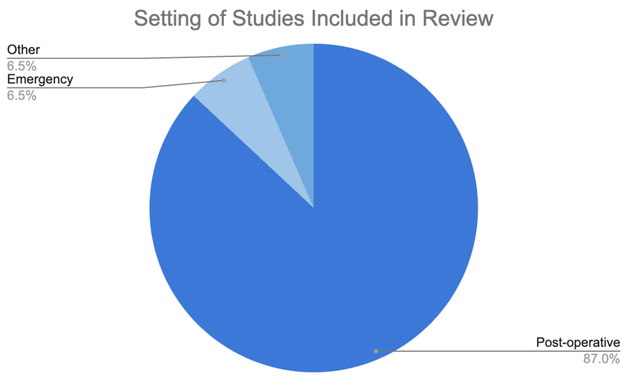
- The nature of battlefield pain requires easy to use and quickly accessible medication.
- Pain needs to be adequately treated, however the time and accessories IV medications require can be burdensome in austere settings.
- Poor pain management leads to prolonged hospitalization, delayed wound healing, increase in health care costs, and psychological consequences.

OBJECTIVES

Review the existing literature discussing current use, pharmacologic properties, limitations, research gaps, and potential future uses of sublingual sufentanil tablet systems.

METHODS

Literature search conducted from 2013 to November 2023. PubMed searched for articles regarding use of sublingual sufentanil in acute pain as well as pharmacokinetics, pharmacodynamics, and clinical applications. **46** studies identified that met inclusion



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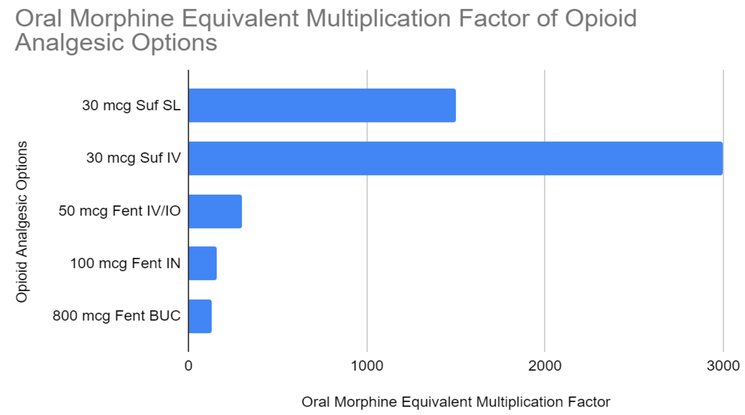
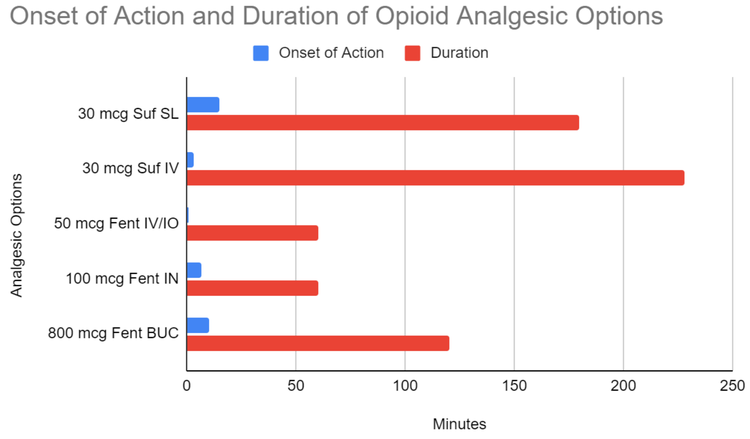
FINDINGS

Analgesic Option	Oral Morphine Equivalent Multiplication Factor	Onset of Action	Duration
30 mcg Sufentanil SL	Approx 1500	15 min	2-3 hrs
30 mcg Sufentanil IV	3000	1-3 min	2.3-3.8 hrs
50 mcg Fentanyl IV/IO	300	< 1 min	0.5-1hr
100 mcg Fentanyl IN	160	7 min	1 hr
800 mcg Oral transmucosal fentanyl citrate (OTFC)	130	5-15 min	1-2 hrs





DISCUSSION

- Sublingual sufentanil tablet (SST) is an easily administered single dose potent analgesic that allows for quick pain relief in patients that do not have IV access or are unable to swallow pills.
- Can be self-administered or administered by someone with basic medical training.
- Potency 5-10 times the strength of fentanyl allows for proper control of acute pain, reducing risk of developing chronic pain syndromes. Aligns with the DOD's current recommendation in the Stepped Model for pain.
- Practical candidate for use in Role 1 and Role 2 military medical settings.

FURTHER DIRECTIONS/LIMITATIONS

- Limited clinical data on applicability of SSTs especially regarding battlefield settings and injuries—no dosing recommendations for these situations
- TBIs made up 19.5% of injuries during the wars in Iraq and Afghanistan. Sufentanil has been found to increase intracranial pressure in patients with head trauma even at modest doses.
- There has yet to be a study directly comparing the effectiveness of the current treatment guidelines of oral transmucosal fentanyl citrate with SSTs which would be beneficial in determining its place in the stepped treatment approach.
- Further research required. Several approval committee members raised concerns regarding lack of comparative efficacy studies with existing opioid and non-opioid standards of care.